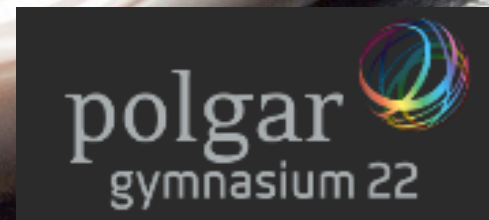


Josef Buchner

Unterricht mit Augmented Reality

Moodle-Treff Kamp-Lintfort, 28.02.2018





Inhalt



Didaktischer Zugang

Beispiele & Anregungen

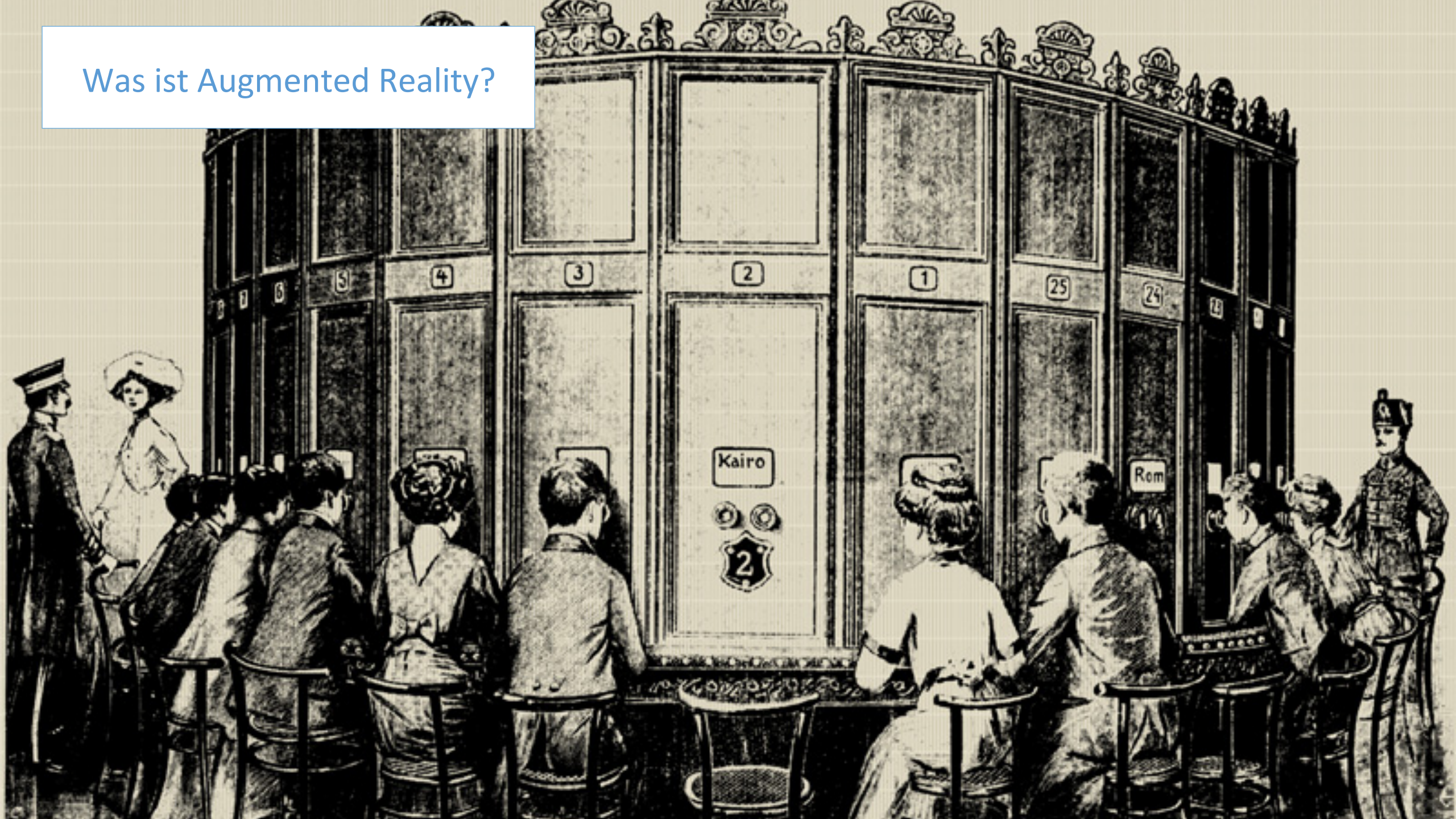
Was ist Augmented Reality?

Menkar

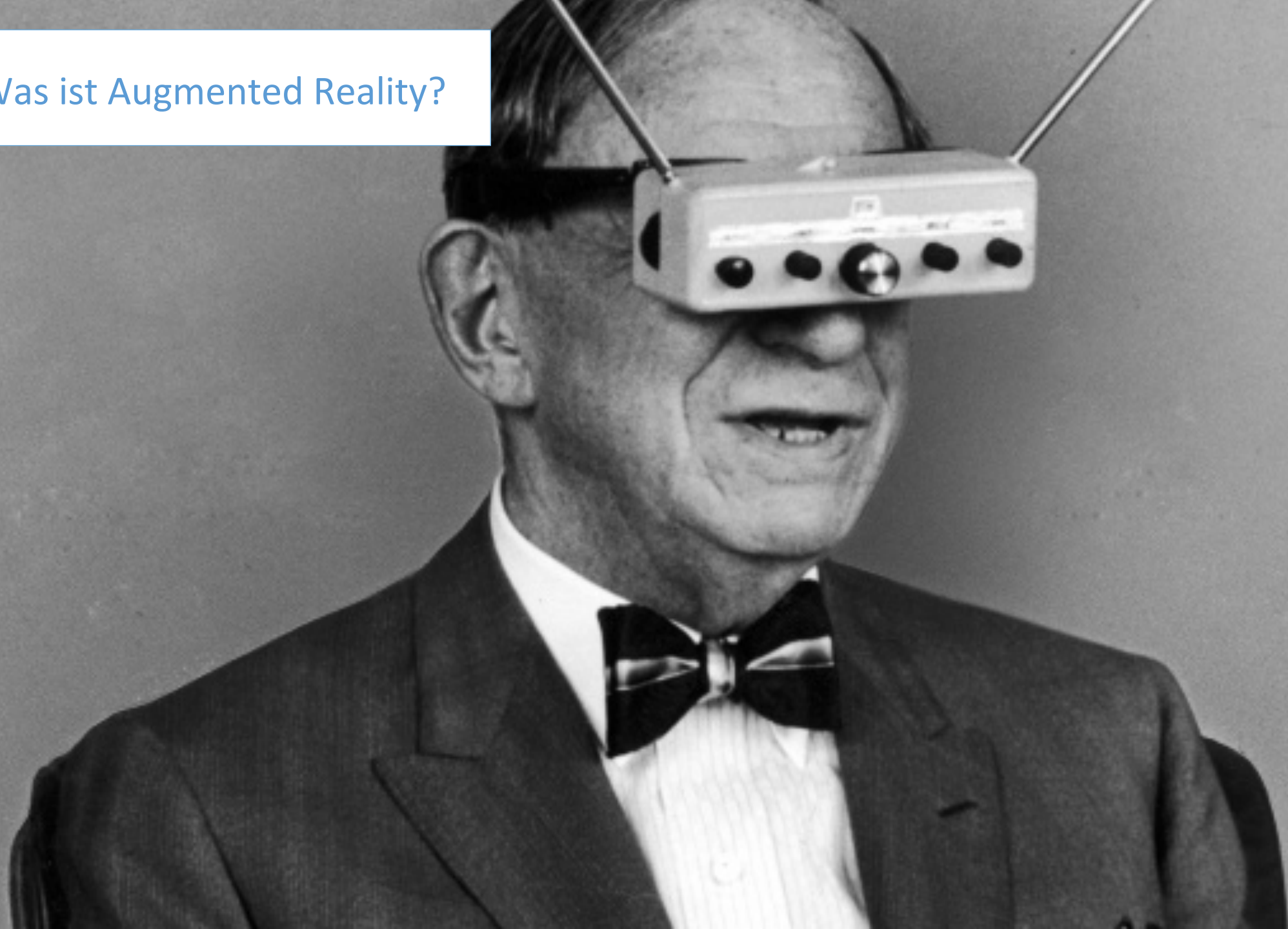
Uranus

Taurus Galaxy

Was ist Augmented Reality?



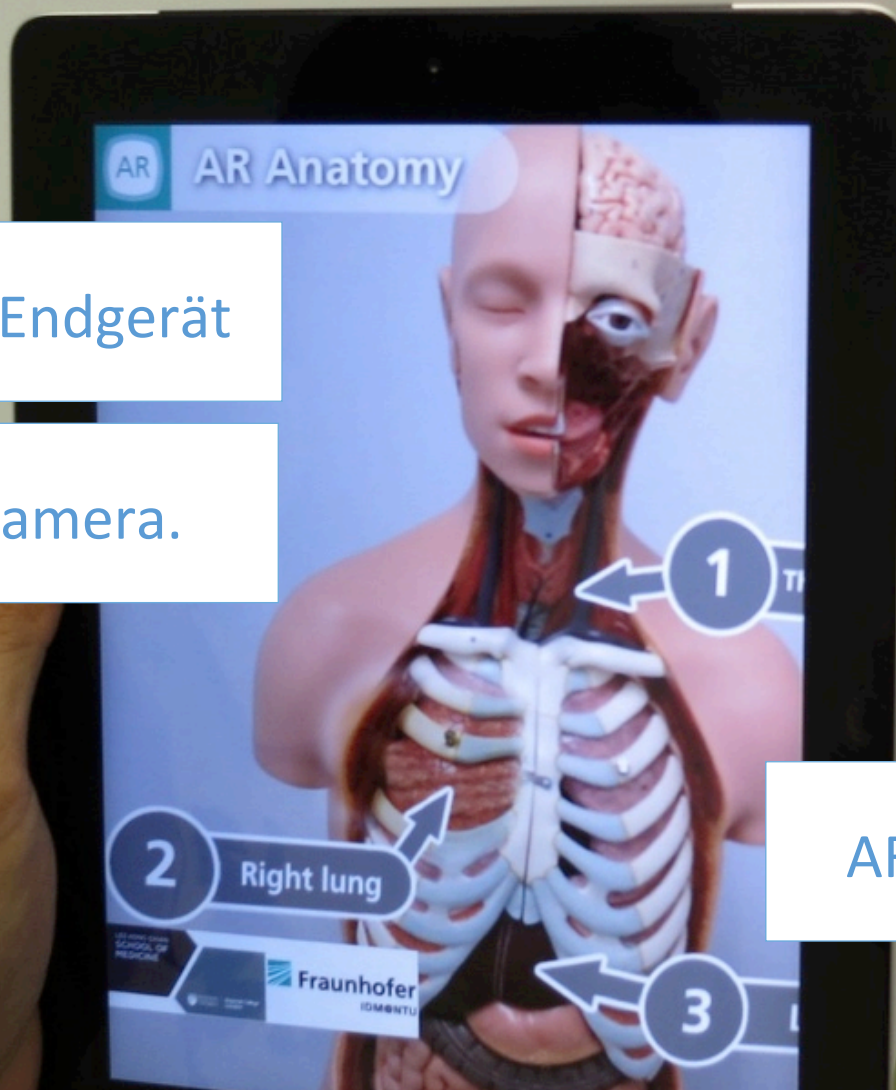
Was ist Augmented Reality?



Das ist Augmented Reality!

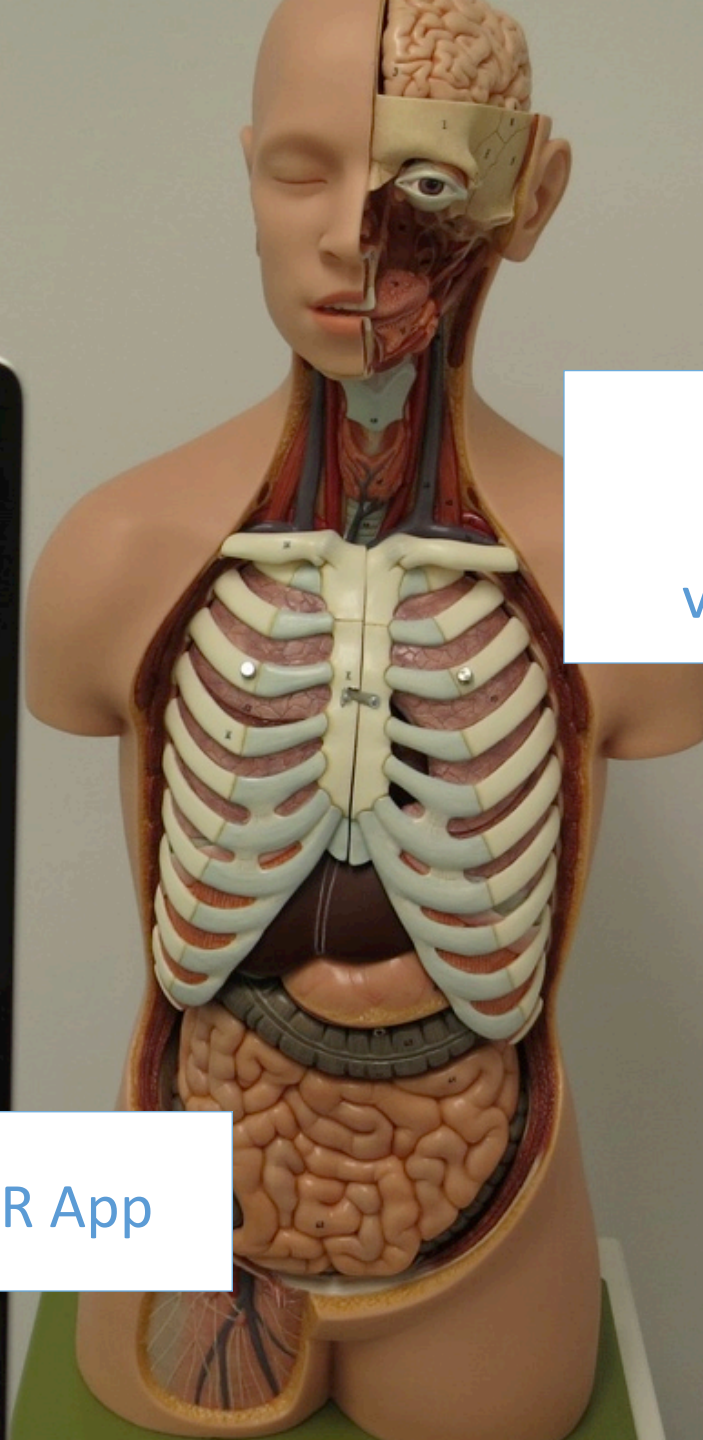
Mobiles Endgerät

...mit Kamera.



AR App

Trigger
=
vision-based



Das ist Augmented Reality!

Mobiles Endgerät

...mit Kamera.



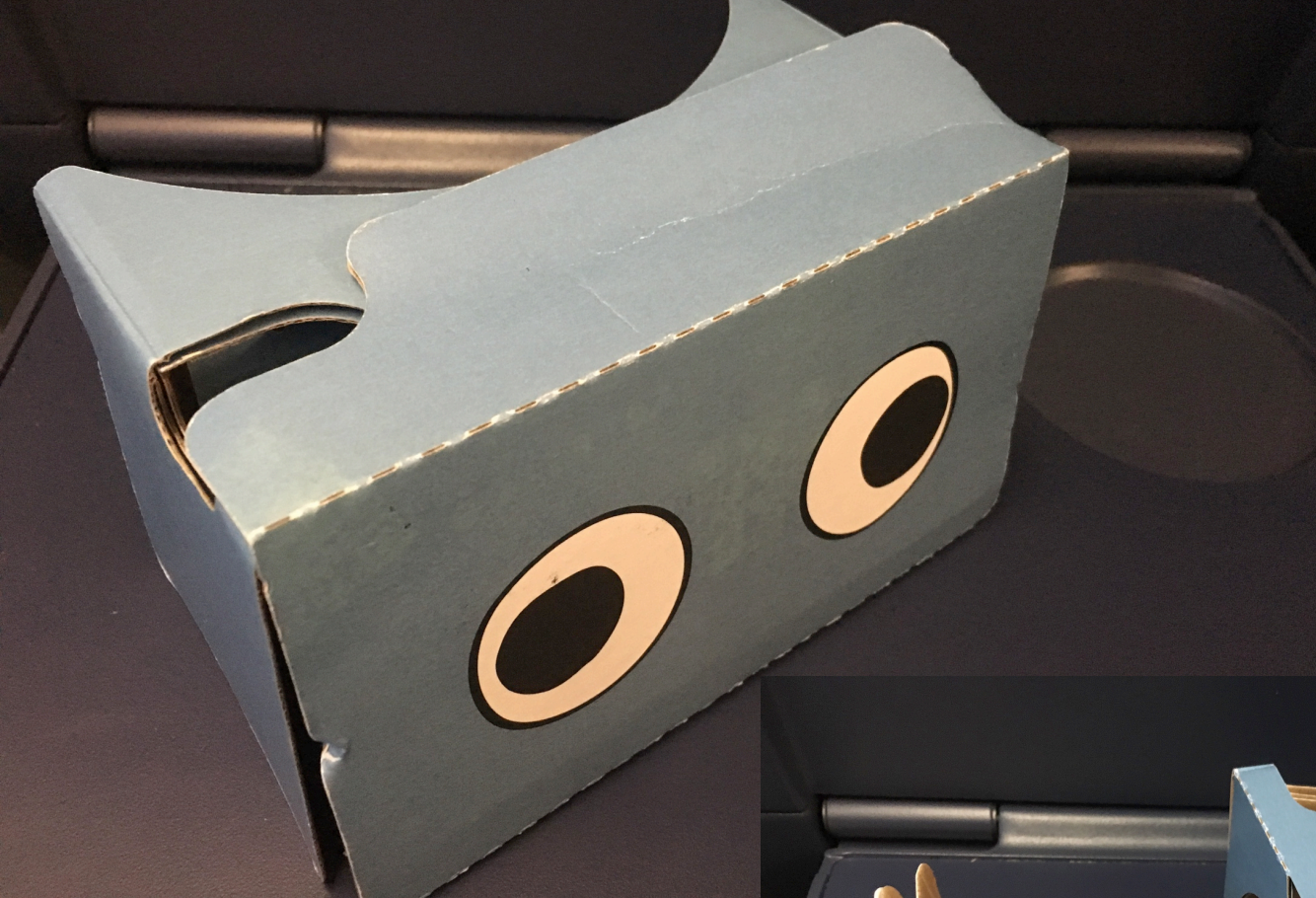
GPS
=
location-based

AR App



Real
Environment

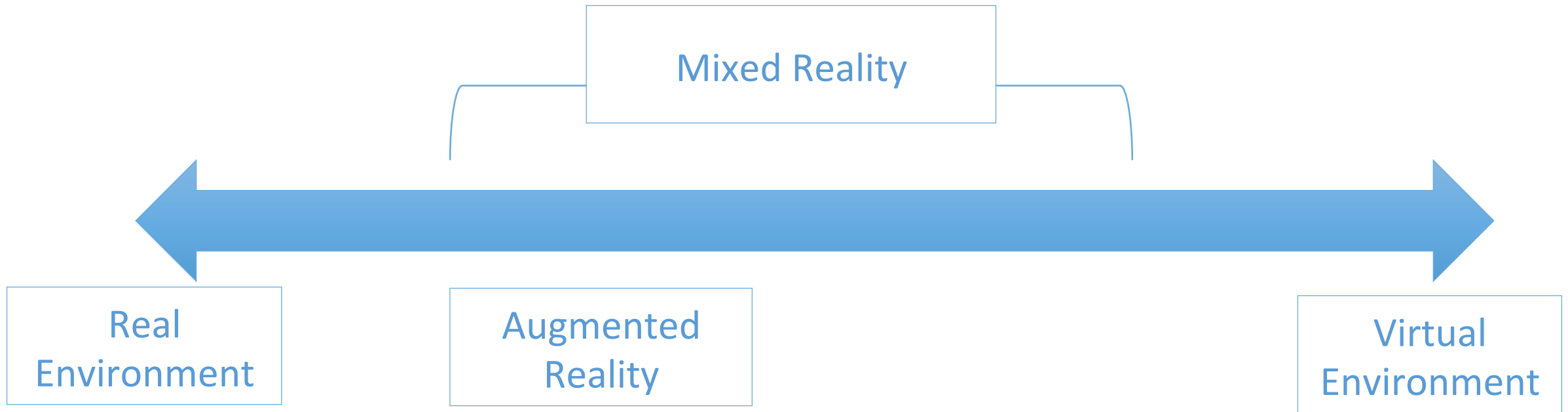
Virtual
Environment

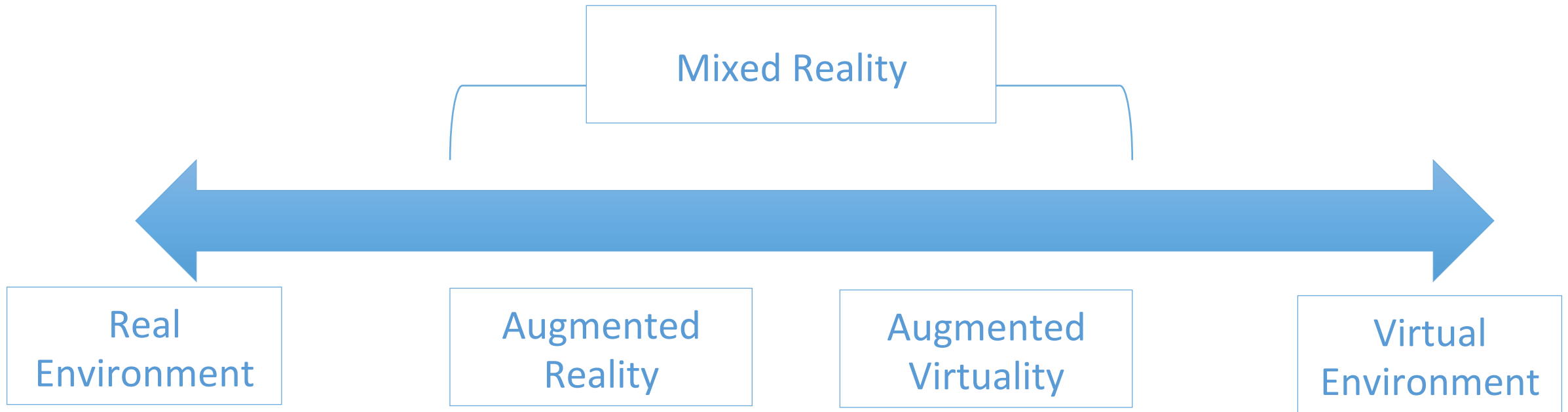


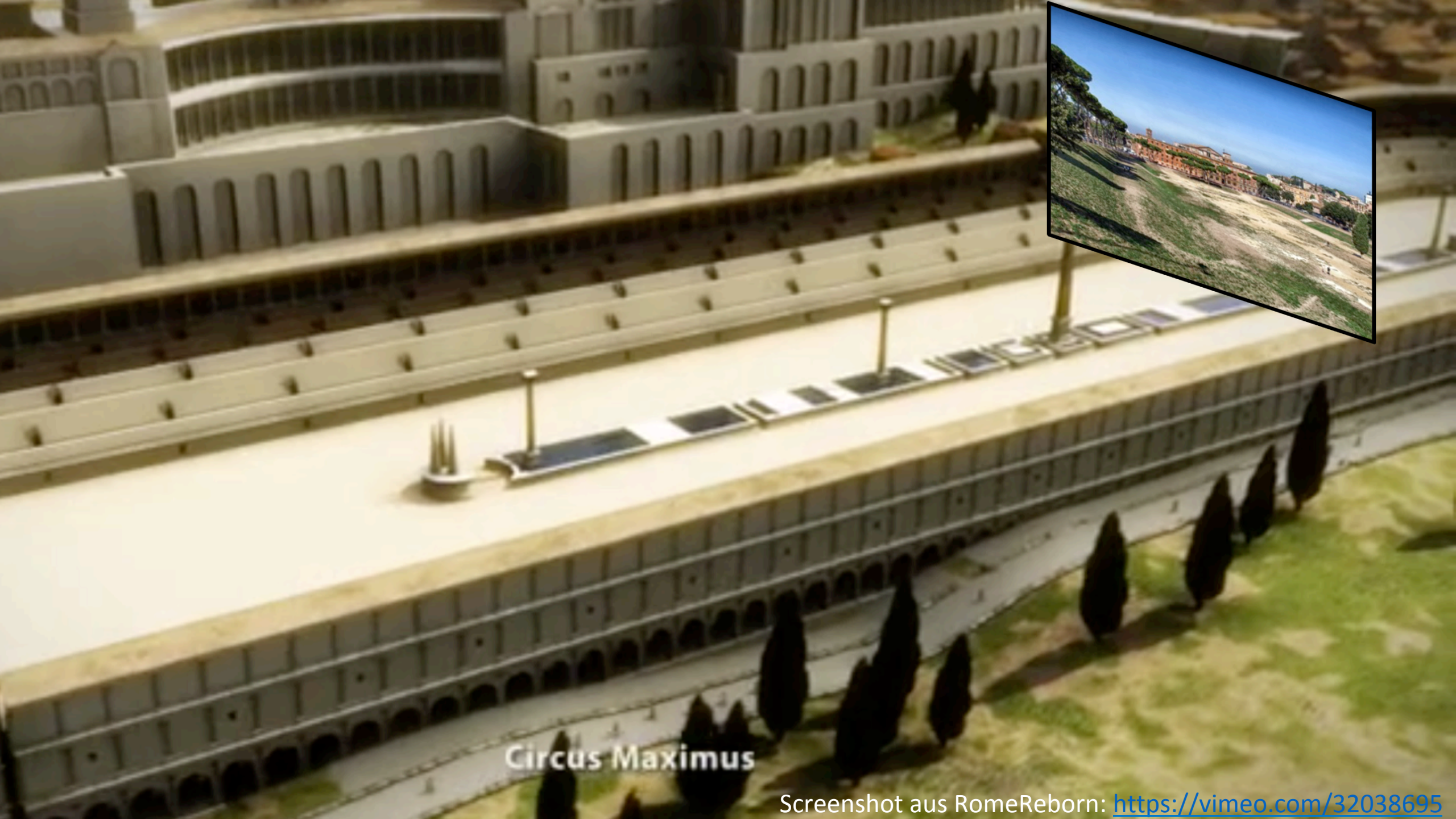
<https://youtu.be/ZuMMzsOEKyk>

Virtual
Environment

www.ph-noe.ac.at







Circus Maximus

IKEA App

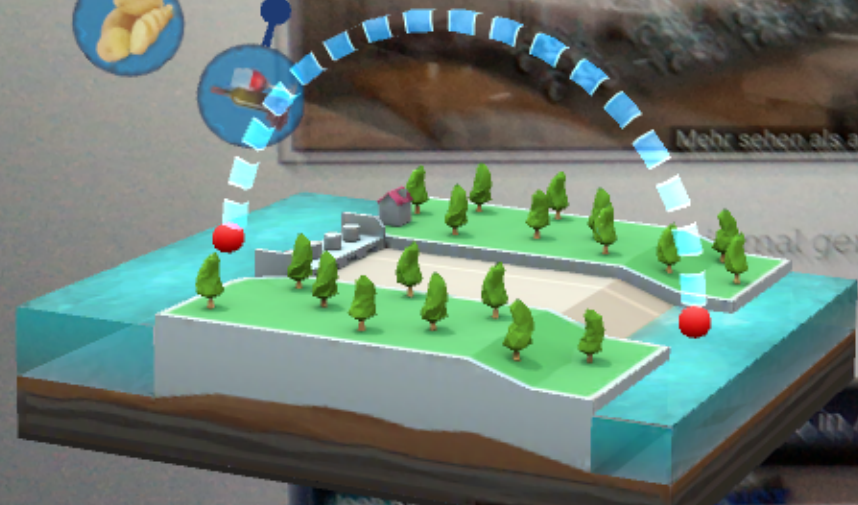




4. Richte die AR-App auf deinen Bildschirm und freu dich über das Ergebnis

Hier gibt es den Trailer.

Galileo AR



GEWICHT

GRÖÖE

GEWICHT

5kg



14kg



18kg

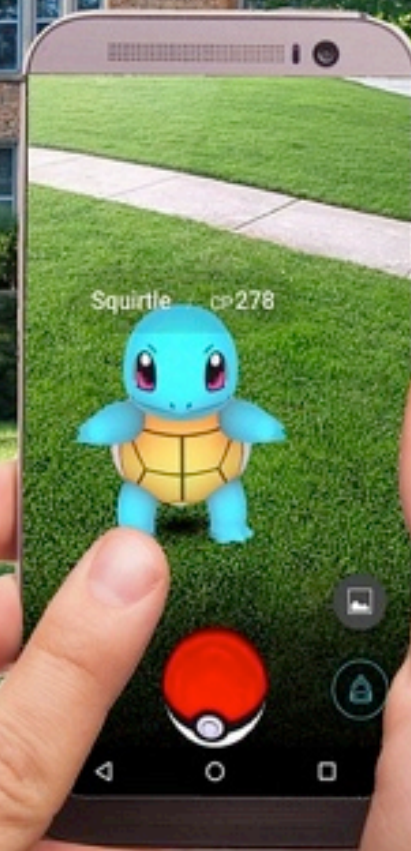


Mehr sehen als andere!

mal genau wissen willst, gibt es hier ein Tutorial zur

in Augment...

PokemonGo





Nach Adresse, Gebäude oder Person suchen

ERWEITERTE SUCHE

ZUR LISTE



VIENNA Memento WIEN

MementoWien



STANDORT



GEBÄUDE



PERSONEN



DIE SCHICKSALE EINER STADT

Die Opfer und Orte des NS-Regimes in Wien

LISTENANSICHT

THE HEART

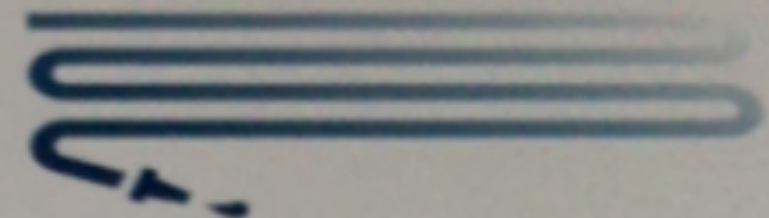
ELECTRICALLY CHARGED

Because the heart has its own electrical system, it can continue to beat even when separated from the body, as long as it has an adequate supply of oxygen.



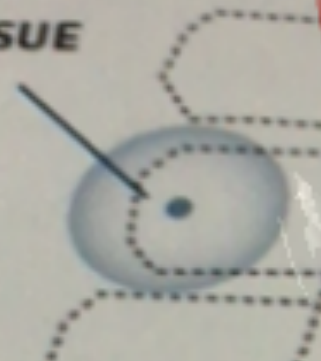
HOSE VS. HAIR

The aorta, the largest artery in the body, is almost the diameter of a garden hose. Capillaries, on the other hand, are so small that it takes ten of them to equal the thickness of a human hair.



CROSS THE TISSUE

Each cell is actually a tiny house.

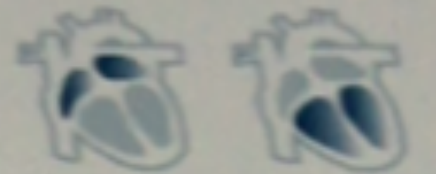


HEART POWER

Volume of blood pumped by the heart over a period of time from five to 30 minutes.

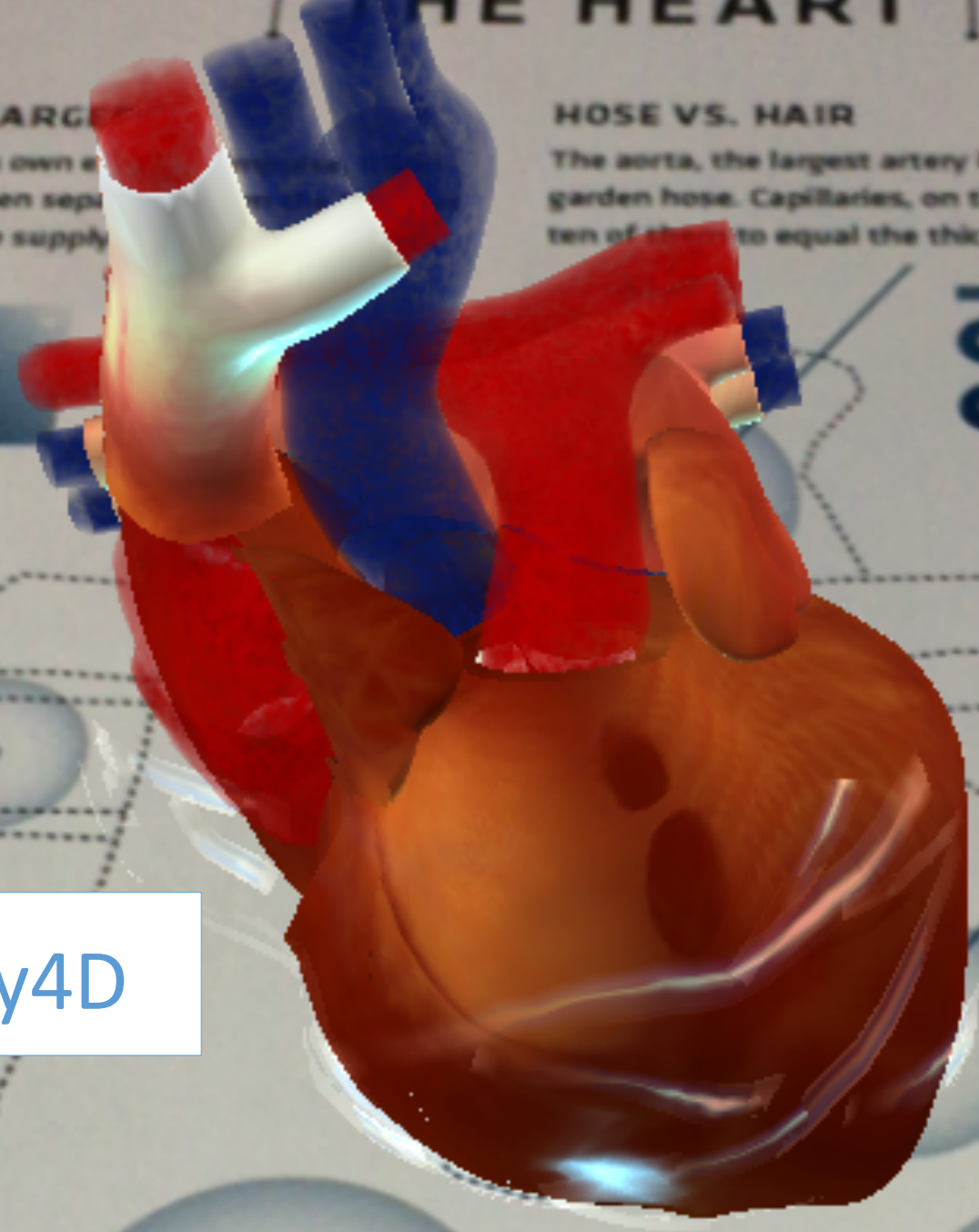
ENTRANCE HALL & LITTLE BELLY

"Atrium" is Latin for "entrance hall" and "ventricle" is Latin for "little belly."



HEART SPRINTS

Even at rest, the muscles of the heart work hard—twice as hard as the muscles of the rest of the body.



Anatomy4D

THE HUMAN BODY

WE GOT THE BEAT

Before each beat, your heart fills with blood. The muscle then contracts to squirt the blood along. An adult heart beats **60-80 times per minute**.

60 - 80

BEATS PER MINUTE

RIGHT VS. LEFT

Right-handed people live, on average, **nine years longer** than left-handed people do. The majority of the machines and tools we use on a daily basis are designed for those who are right handed, resulting in thousands of accidents and deaths each year.

MILES OF VESSELS

The human body has **60,000 miles of blood vessels**. The distance around the earth is about 25,000 miles, making the distance your blood vessels could travel if laid end to end more than 2x around the earth.



WET FEET

Feet have **500,000 sweat glands** and can produce more than a pint of sweat a day.

BRAIN POWER

The brain operates on the same amount of power as a **10-watt light bulb** and generates as much energy as a small light bulb even when you're sleeping.



BREATHE IN

The surface area of a human lung is equal to a **tennis court**.



The large amount of surface area makes it easier for the exchange of oxygen and carbon dioxide to take place, and makes sure you stay properly oxygenated at all times.

"SMALL" INTESTINE

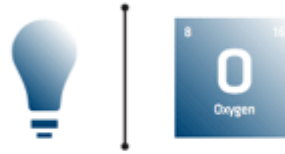
The largest internal organ is the small intestine. In fact, it's so long that it is actually **four times as long as the average adult is tall**.



THE HEART

ELECTRICALLY CHARGED

Because the heart has its own electrical impulse, it can continue to beat even when separated from the body, as long as it has an adequate supply of oxygen.



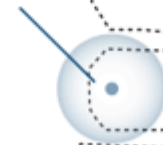
HOSE VS. HAIR

The aorta, the largest artery in the body, is almost the diameter of a garden hose. Capillaries, on the other hand, are so small that it takes ten of them to equal the thickness of a human hair.



PASS THE TISSUE

Blood is actually a tissue.



HEART POWER

The volume of blood pumped by the heart can vary over a wide range, from five to 30 liters per minute.



ENTRANCE HALL & LITTLE BELLY

"Atrium" is Latin for "entrance hall" and "ventricle" is Latin for "little belly."



HEART SPRINTS

Even at rest, the muscles of the heart work hard—twice as hard as the leg muscles of a person **sprinting**.

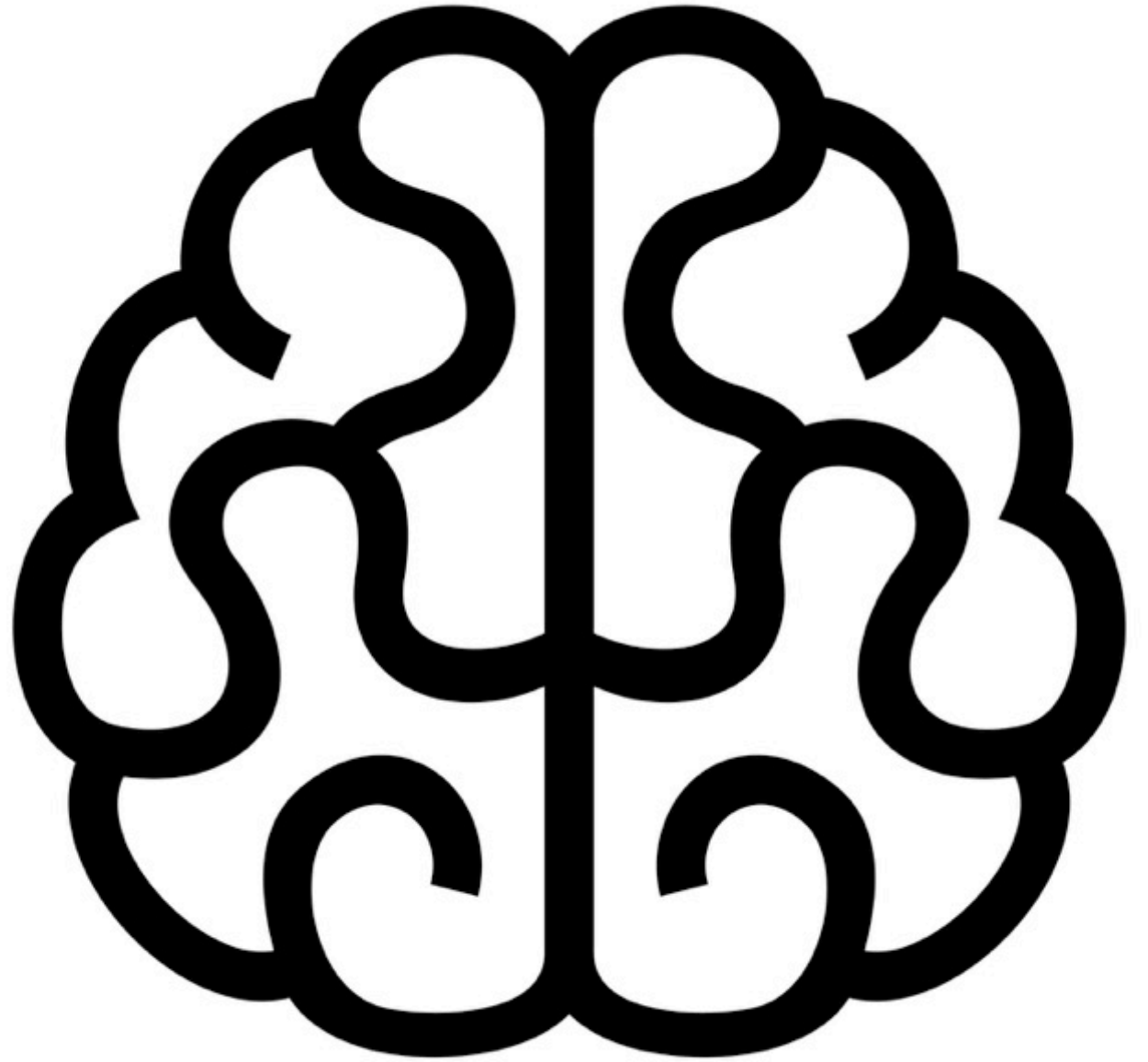


Organ traveled to

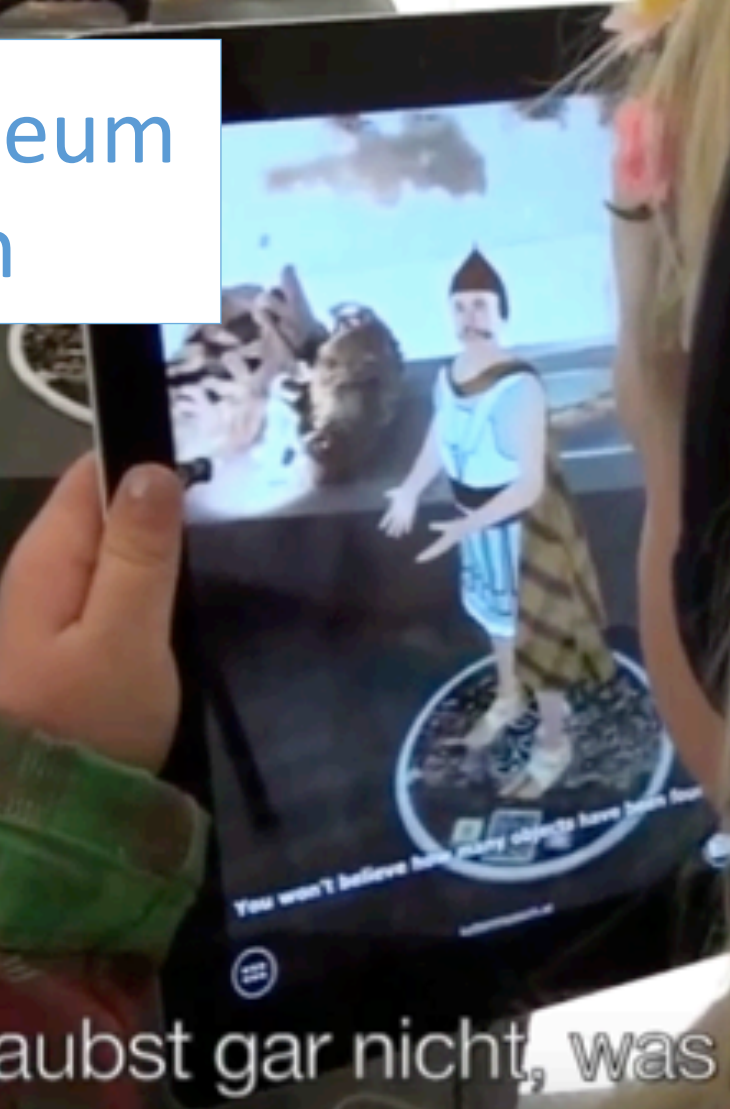
Amount of time blood takes to return to heart (in seconds)

TRAVEL PRO

CorticalBrain



Keltenmuseum
Hallein



Du glaubst gar nicht, was nach so langer Zeit

Schulbuch mit AR-Elementen

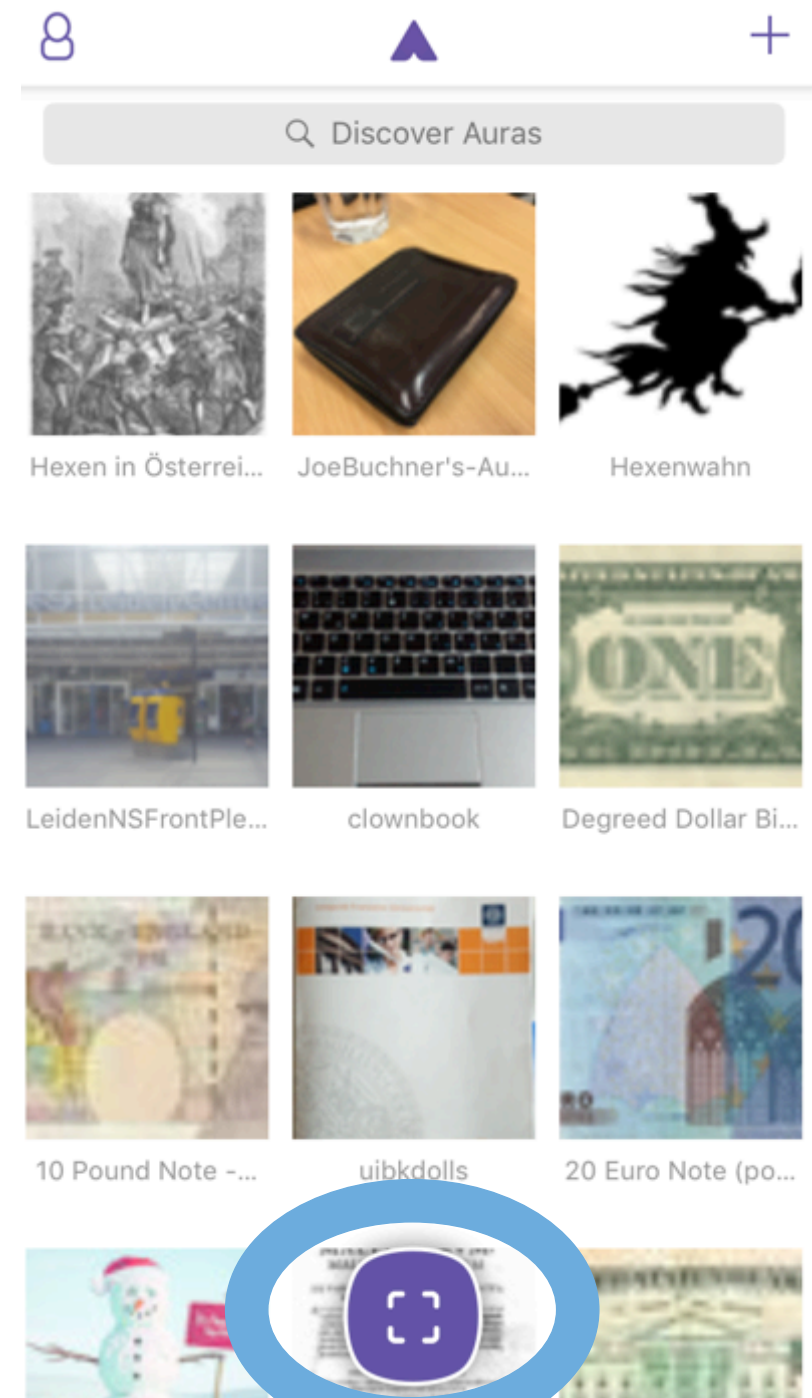


Areka
Bildung

<http://www.areka.net>

AR-Elemente selber gestalten

- App HP Reveal (früher Aurasma)
- Log in:
 - Username: icm18
 - Password: icm18
 - JoeBuchner





EON Creator AVR



Google Expeditions



Nearpod



Augment



VR Tube



Jaunt VR



Metaverse



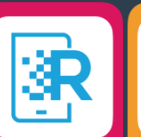
JigSpace



BlippAR



ZappAR



HP Reveal



VRU



Google Arts & Culture



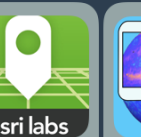
Bosch VR



Google Street View



NeoAR



esri labs



Meteo AR



ARc Stories



Ancient Jerusalem



Athens in VR



Aug That



Sketchfab



Teleport 360



Quiver Education



Roomful



LEGO AR Studio



Wonder 360



World Brush



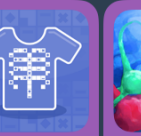
SketchAR



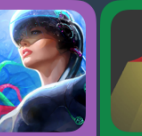
iSolar System AR



Barcy



Virtuali-tee



InMind VR



Google Spotlight Stories



King Tut VR 2



MNV Virtual Tour



CoSpaces EDU



Arloon Geometry



Math Ninja AR



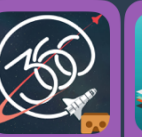
Spacecraft 3D



Liftoff VR



Space 4D+



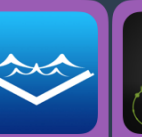
KSC 360



ZooKazam



Chemistry VR



DIVER Edu



Insight Heart



Random 42



LifeLiqe



Terracotta Warriors AR



Moses VR



Paphos Theatre VR



Tickle



Geogebra AR



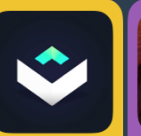
MeasureKit



Augmentify It



Franklin Institute VR



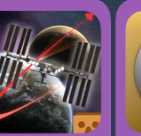
Kubity



Virry



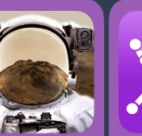
Anatomyou VR



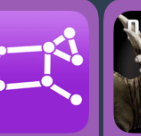
Edge of Home



Molecule VR



MarsWalk VR



Night Sky



Dinosaur 4D+



AR Freedom Stories



Sigurd & the Dragon VR



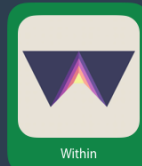
TimeLooper

THE PERIODIC TABLE

OF iOS APPS FOR

AR AND VR *to try today!*

- STEM
- GEOGRAPHY
- ART
- SCIENCE
- CREATIVITY
- STORY TELLING
- TEACHING
- HISTORY



Within



AirPano Travel Book



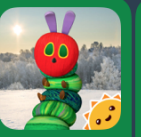
360 Cities



Discovery VR



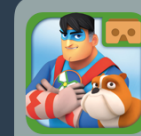
Figtment



Hungry Caterpillar AR



BaoBab VR



Cleanopolis



YouVisit



Water Cycle VR



Storyfab



War of Words VR



Peronio Pop-Up Book



PLEASE NOTE THAT APPS USING APPLE'S AR KIT WILL ONLY WORK ON DEVICES WITH AN A9 CHIP OR ABOVE

CREATED BY MARK ANDERSON @ICTEVANGELIST / CURATED WITH STEVE BAMBURY @VIRTUALITEACH ICT EVANGELIST

<https://ictevangelist.com/the-new-periodic-table-of-ios-apps-for-ar-and-vr/>

www.pri-noc.ac.at

Lernumgebungen mit QR Codes gestalten



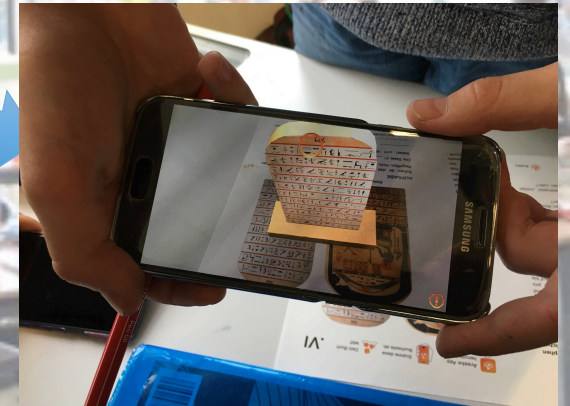
Lernumgebungen mit QR Codes gestalten



<http://bit.do/youtube360vr>



Lernumgebungen mit AR gestalten



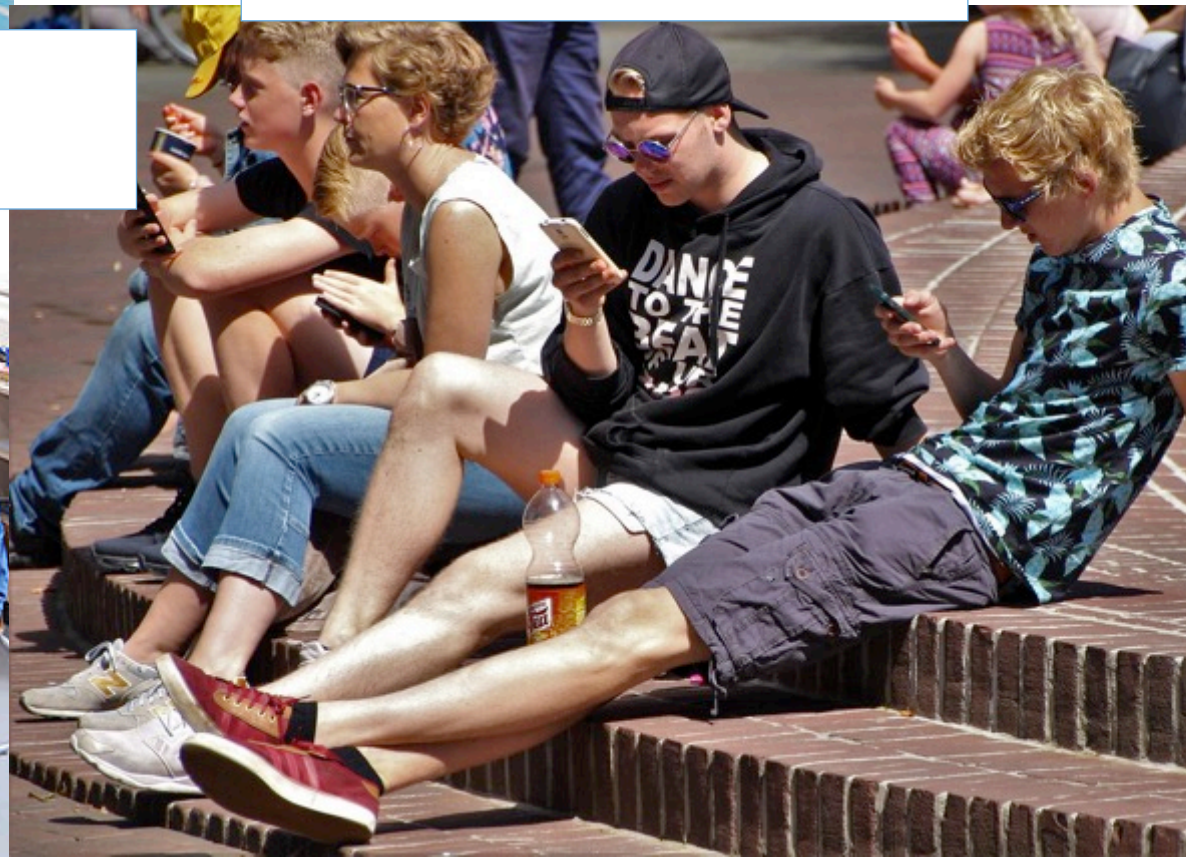
Darum Augmented Reality in der Schule! Mitchel Resnick: Give P's a chance

PASSION

PEERS

PLAY

PROJECTS



Darum Augmented Reality in der Schule!

PASSION

PEERS

PLAY

SMARTPHONE

PROJECTS



MOBIL

SELBSTBESTIMMT

INTERAKTIV

KOOPERATIV

AUTHENTISCH

vgl. Ferrer-Terregrosa et al., 2016; Santos et al., 2016; Herber et al., 2013

MOBIL

SELBSTBESTIMMT

INTERAKTIV

Förderung Intrinsischer Motivation!

KOOPERATIV

AUTHENTISCH

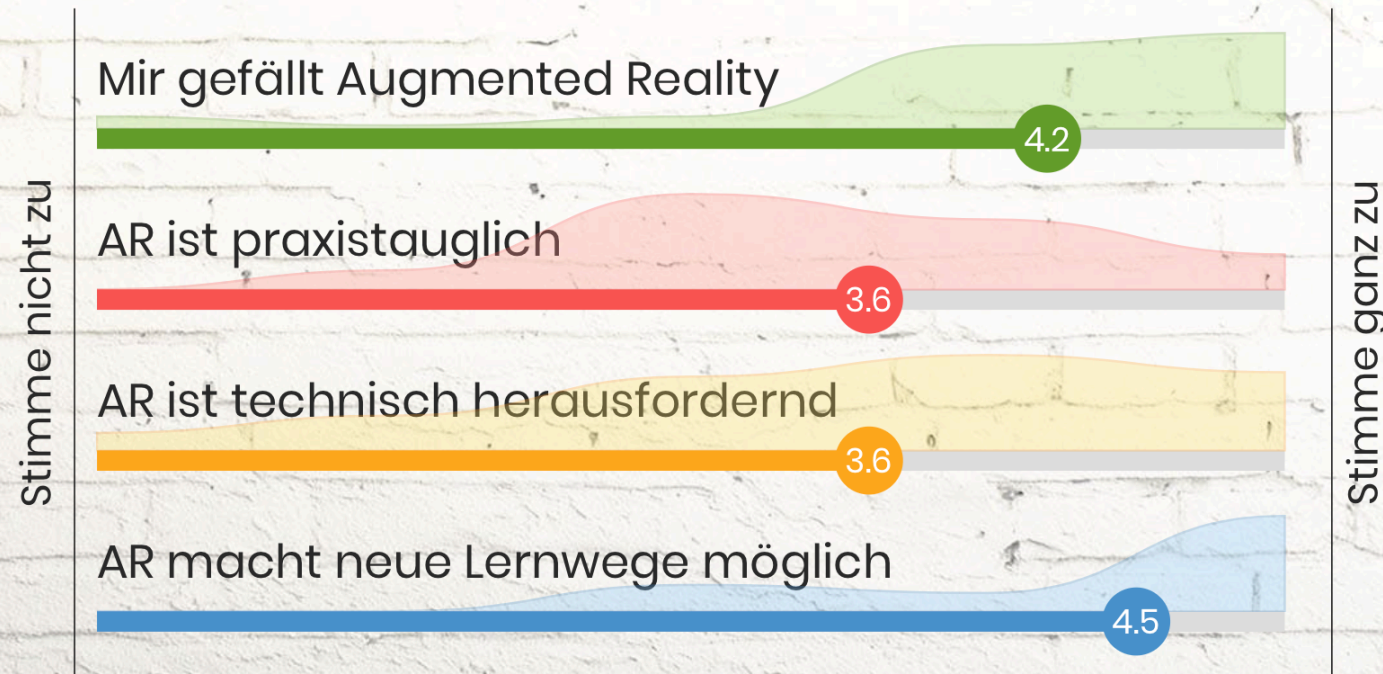
vgl. Ferrer-Terregrosa et al., 2016; Santos et al., 2016; Herber et al., 2013
Buchner, 2017, Offener Unterricht mit Augmented Reality, Erziehung und Unterricht.

Feedback

menti.com

518119

Rückmeldung zu AR im Unterricht



„Lehrpersonen gehören zu den wirkungsvollsten Einflüssen des Lernens“

-John Hattie, Lernen sichtbar machen

#teachdifferent
#promotelearning

E-Mail josef.buchner@ph-noe.ac.at
YouTube <http://youtube.com/josefbuchner>
Homepage <http://www.flipped-classroom-austria.at>
Twitter [@Josef Buchner](https://twitter.com/Josef_Buchner)



Links

- Anleitung Aurasma Studio: <http://bit.do/araurasma>
- Elements4D: <http://elements4d.dagri.com/#intro>
- Anatomy4D: <http://anatomy4d.dagri.com>
- Zookazam: <http://www.zookazam.com>
- Aurasma Studio: <https://www.aurasma.com>
- PH Niederösterreich: <http://digital.ph-noe.ac.at/>
- Flipped Classroom in Österreich: <http://www.flipped-classroom-austria.at>
- Flipped Classroom DACH: <http://www.umgedrehterunterricht.de>
- Whiteboard Videos: <https://explaineverything.com>
- Education Innovation Studio: <http://eis.ph-noe.ac.at>
- Safer Internet: <https://www.saferinternet.at>
- Apps, Tipps und Tricks: <http://kids.t-mobile.at>
- Tools und Anleitungen: <http://www.medienfundgrube.at>
- Videos interaktiv machen: <https://h5p.org>